CLAIMS:

1. A DA-converter system comprising a digital sigma-delta modulator (1) for receiving a multi-bit digital input signal (v_1), for providing a reduced word-length digital output signal (v_2) and for noise shaping the quantization noise generated thereby to a frequency band outside the frequency band of the digital input signal, said DA-converter system further comprising a digital to analog converting combiner (2) with first and second digital inputs (I_1, I_2) and an analog output (O) and with the first digital input (I_1) connected to the output of the digital sigma-delta modulator, characterized by said sigma-delta modulator providing a reduced word-length multi-bit (few-bit) digital output signal and by a noise reduction arrangement for reducing the out-of-band quantization noise generated by the sigma-delta modulator, said noise reduction arrangement comprising means (M_2) connected to the sigma-delta modulator for isolating the quantization noise generated thereby, a second noise shaper (3) with substantially frequency independent signal transfer function receiving the isolated quantization noise and reducing the word-length of this quantization noise, and means to supply the reduced word-length quantization noise from the second noise shaper (3) to the second digital input (I_2) of the digital to analog converting combiner for generating an analog output signal with reduced out-of-band quantization noise at the combiner output (O).

2. A DA-converter system as claimed in claim 1 characterized in that the digital to analog converting combiner (2) comprises a first DA-converter (D_1) connected to the first input (I_1) for converting the reduced word-length digital output signal (v_2) of the sigma-delta modulator, a second DA-converter (D_2) connected to the second input (I_2) for converting the reduced word-length quantization noise from the second noise shaper (3) and an analog combiner (P) receiving the output signals of the first and second DA-converters and generating the analog output signal with reduced out-of-band quantization noise at the combiner output (O).

3. A DA-converter system as claimed in claim 1 characterized in that the signal transfer function of the second noise shaper (3) is approximately equal to unity and that the noise reduction arrangement comprises a digital amplifier (A) for amplifying the isolated

quantization noise with a predetermined factor prior to its application to the second noise shaper (3) and that the digital to analog converting combiner comprises an attenuator (B) for attenuating the reduced word-length quantization noise derived from the second noise shaper (3) with substantially the same predetermined factor.

4. A DA-converter system as claimed in claim 3 characterized in that the attenuator (B) is an analog attenuator arranged between the output of the second DA-converter (D_2) and the analog combiner (P).

5. A DA-converter system as claimed in claim 3 characterized in that means (C) are provided to reduce the difference between the input signal and the output signal of the second noise shaper (3) when this difference is larger than one least significant bit of the output signal.

6. A DA-converter system as claimed in claim 3 characterized by calibrating means for supplying, during a calibration mode, a calibration signal (w) to the first digital input (I_1) of the digital to analog converting combiner (2) and through the digital amplifier (A) and a short-circuit bypass of the second noise shaper (3) to the second input (I_2) of the digital to analog converting combiner (2), for measuring the resulting analog calibration signal at the combiner output (O) and for setting the gain of the digital amplifier (A) and/or of the attenuator (B) to minimize said resulting analog calibration signal at the combiner output (O).

7. A DA-converter system as claimed in claim 6 characterized in that the sigma-delta modulator (1), which receives a zero input signal during the calibration mode, generates the calibration signal.

8. A method of converting a multi-bit digital signal to an analog output signal, comprising the steps of reducing the word-length of the digital input signal by means of a digital sigma-delta modulator (1), thereby shaping the generated quantization noise to a frequency band higher than the baseband of the digital input signal and applying the reduced word-length digital output signal of the sigma-delta modulator to a first digital input (I_1) of a digital to analog converting combiner (2) for generating the analog output signal, characterized by isolating the quantization noise (ε) from the sigma-delta modulator by

subtracting the input signal and the output signal of the sigma-delta modulator from each other, reducing the word-length of the isolated quantization noise by means of a second noise shaper (3) with substantially frequency independent signal transfer function and applying the reduced word-length quantization noise to a second digital input (I_2) of the digital to analog converting combiner for the generation of the analog output signal with reduced out-of-band quantization noise at an analog output (O) of the combiner.